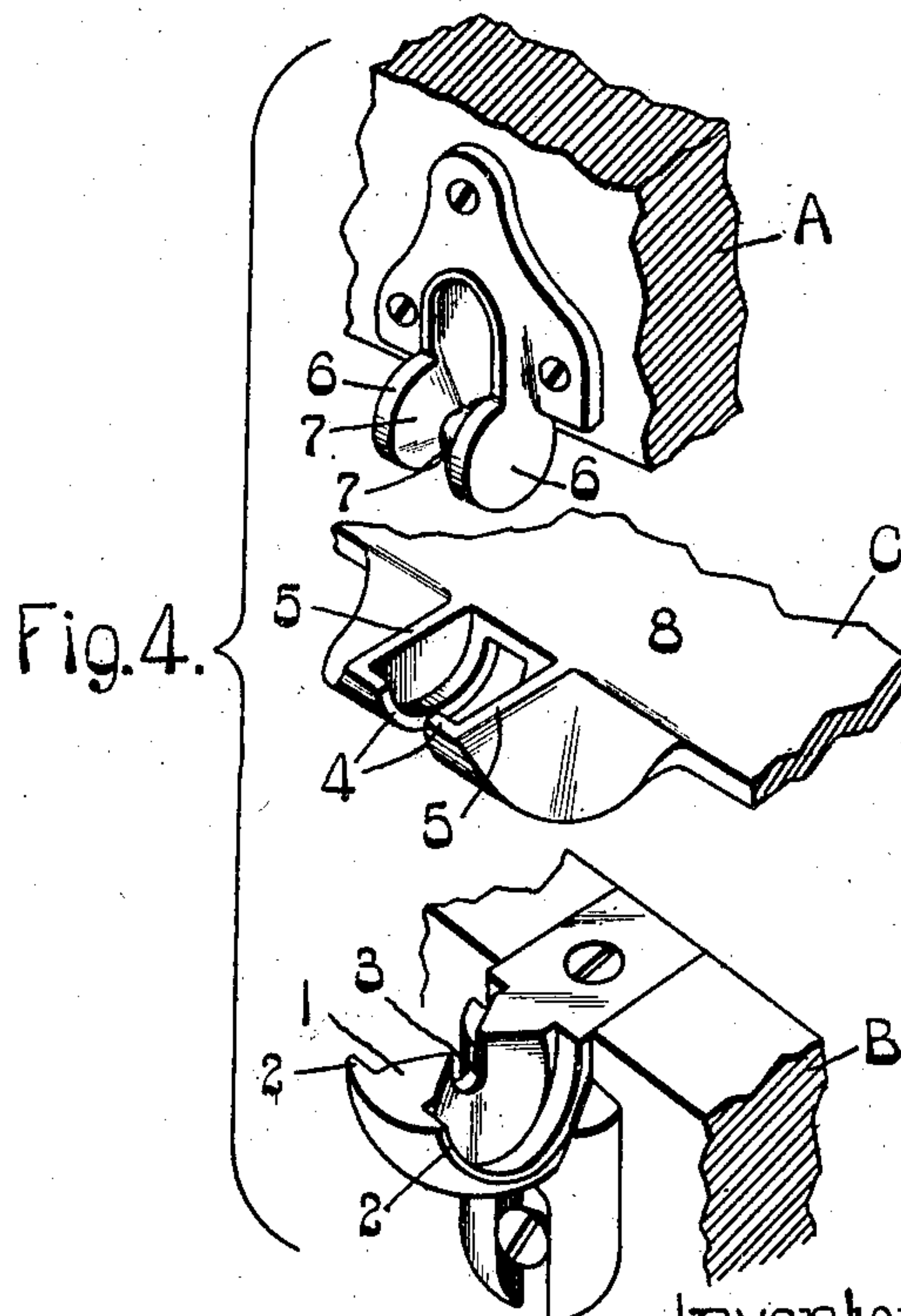
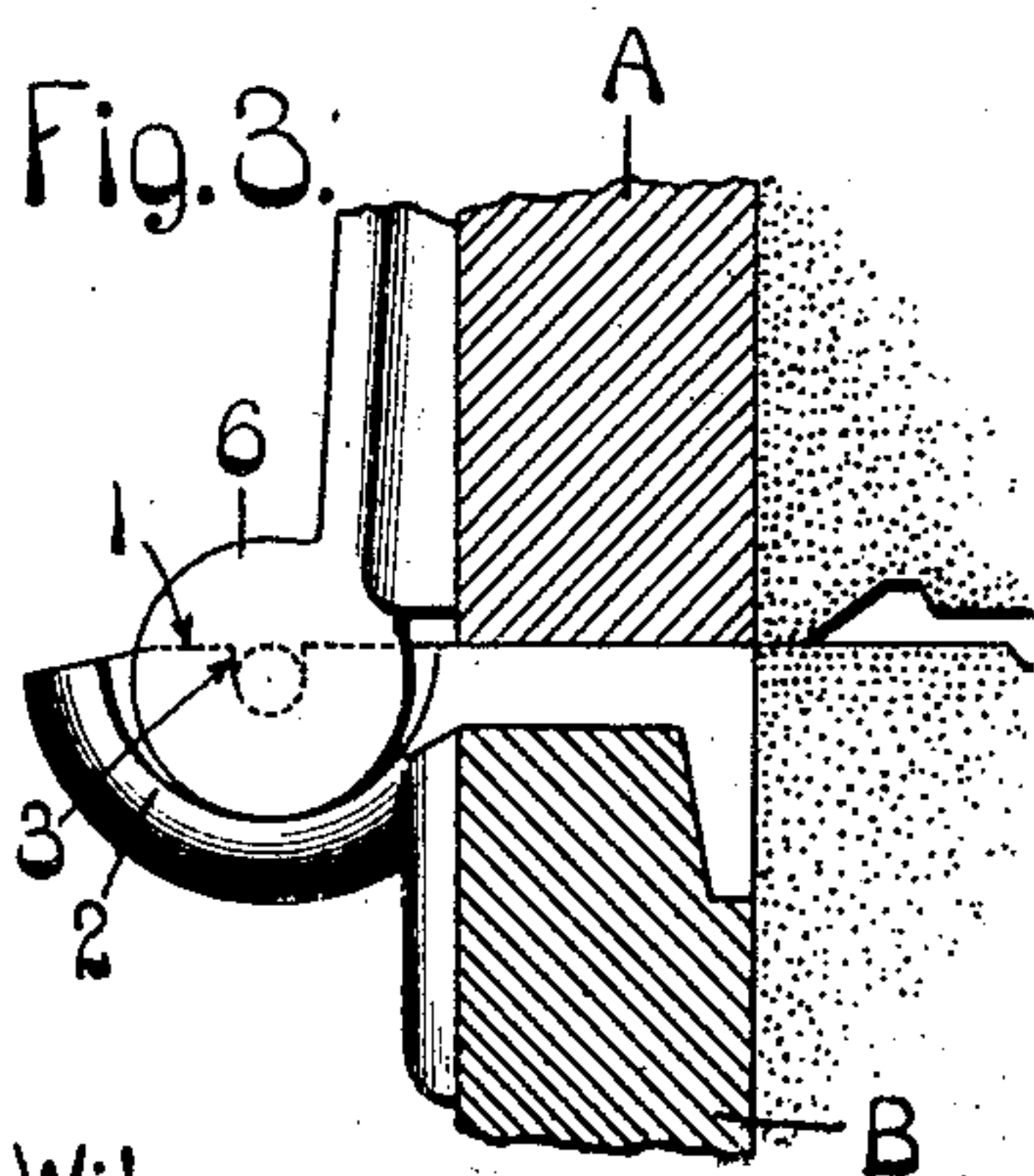
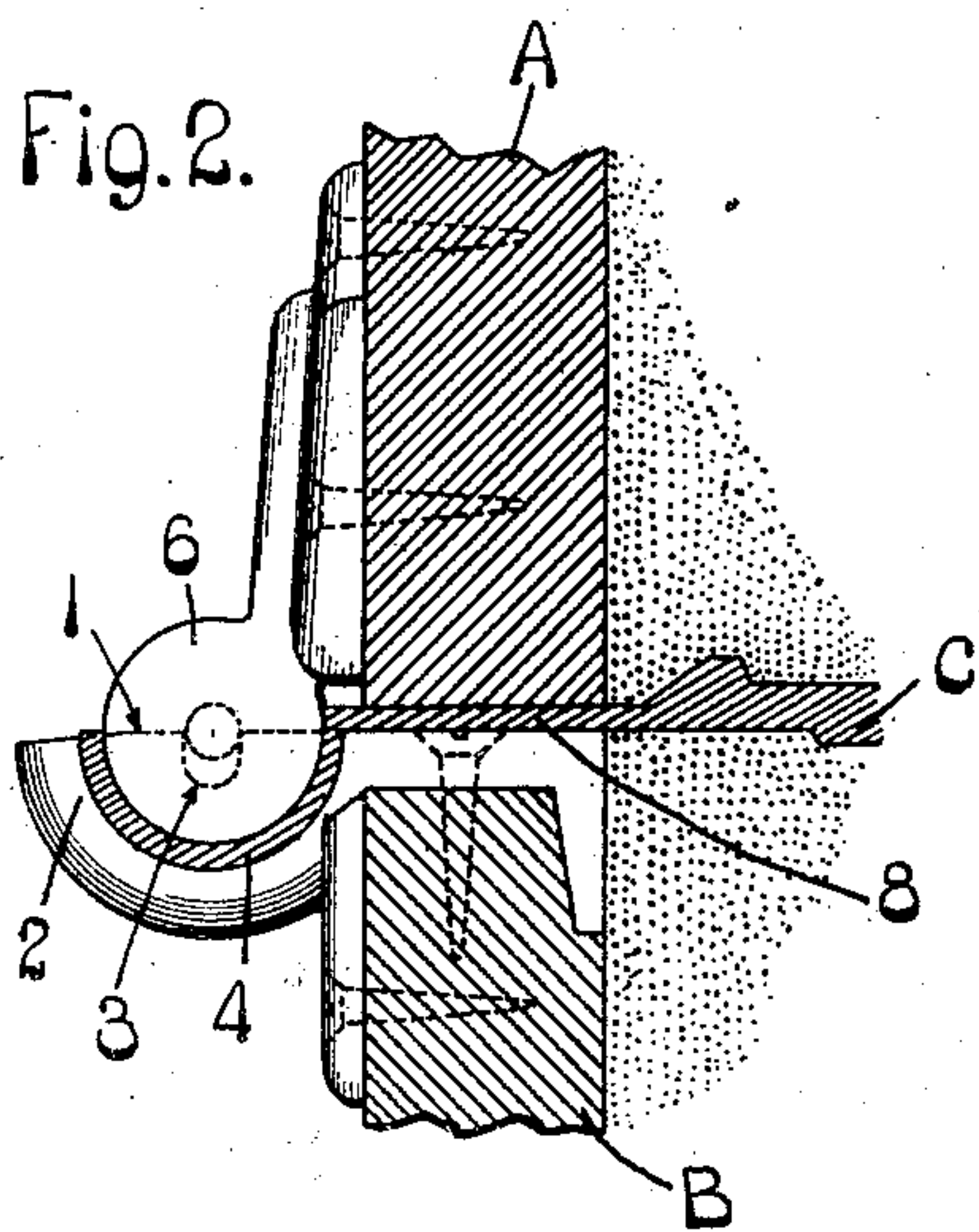
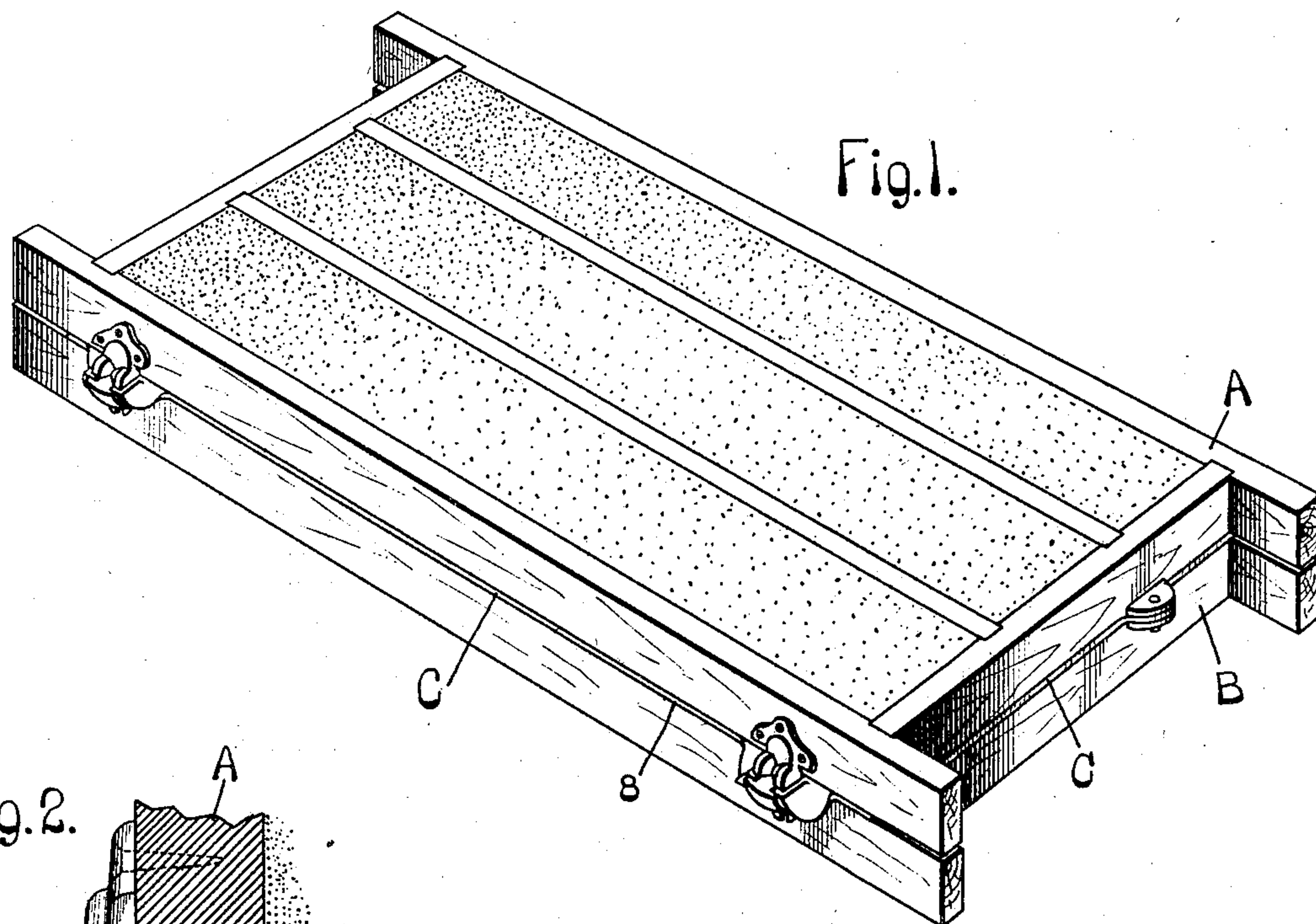


No. 898,158.

PATENTED SEPT. 8, 1908.

L. W. VAN CLEAVE & G. O. DEWEY.  
HINGED MATCH PLATE FOR FLASKS.

APPLICATION FILED APR. 18, 1908.



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# UNITED STATES PATENT OFFICE.

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## HINGED MATCH-PLATE FOR FLASKS.

No. 898,153.

Specification of Letters Patent.

Patented Sept. 8, 1908.

Application filed April 18, 1908. Serial No. 427,898.

*To all whom it may concern:*

Be it known that we, LEE W. VAN CLEAVE and GEORGE O. DEWEY, both citizens of the United States, residing at St. Louis, Missouri, have invented a certain new and useful Improvement in Hinged Match-Plates for Flasks, of which the following is a full, clear, and exact description, such as will enable others skilled in the art to which it ap-  
10 pertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a perspective view of a flask and a match-plate arranged between the  
15 cope and drag of the flask and provided with hinge members that cooperate with hinge members on the cope and drag; Fig. 2 is an enlarged detail view showing one of the hinge members on the match-plate arranged be-  
20 tween the cooperating hinge members on the cope and drag of the flask; Fig. 3 is a view similar to Fig. 2 showing the match-plate removed; and Fig. 4 is a detail perspective view of the cooperating hinge members on  
25 the cope, match-plate and drag.

This invention relates to match plates and flasks such as are used in metal founding.

As is well-known, a match-plate consists of a plate or member provided on its opposite  
30 sides with the two halves of a pattern. The match-plate is arranged between the cope and drag of the flask and after the flask has been rammed the cope is separated from the drag and the match-plate is then removed,  
35 thus leaving the impression of one-half of the pattern in the drag and the other half of the pattern in the cope. The cope is then replaced on the drag and the metal is poured  
40 into the hollow space which the pattern on the match-plate has formed in the cope and drag.

Prior to our invention the match-plates that were provided on their opposite sides with the two halves of a pattern, were merely  
45 placed between the cope and drag of the flask and were not connected to same so that to remove a match-plate it was necessary for a workman to lift it bodily off the drag after the cope had been removed. As the match-  
50 plate had to be lifted bodily off the drag the match-plate necessarily had to be comparatively small so that the workman could handle it and raise it evenly. Consequently, the match-plates that have heretofore been  
55 in general use could not be used in casting

large articles because the match-plate had to be small enough to enable the workman to handle it.

The main object of our invention is to provide a match-plate of the type above re-  
ferred to which is connected to one member  
60 of a flask in such a manner that a workman can remove it by merely swinging it upwardly, thus permitting large match-plates to be used.

Another object of our invention is to provide a hinge comprising two members that are adapted to be connected to the cope and drag of a flask and an intermediate member that is adapted to be connected to a match-  
70 plate which is arranged between the cope and drag, said cooperating hinge members being so constructed that the cope can be swung upwardly and removed and the match-plate can thereafter be swung upwardly and lifted  
75 out of the hinge member on the drag. After the match-plate has been removed the hinge member on the cope is inserted in the cooperating hinge member of the drag and the cope is then swung downwardly into operative  
80 position.

Referring to the drawings which illustrate the preferred form of our invention, A and B designate, respectively, the cope and drag of a flask, and C designates a match-plate that  
85 is provided on its opposite sides with the two halves of a pattern. The drag B is provided at its rear side with a plurality of hinge members each of which comprises a vertically disposed web 1 and semi-circular-shaped flanges  
90 2 that project laterally from the opposite sides of said web. The web 1 is provided with a slot 3 that forms a socket or bearing for a portion of a cooperating hinge member on the cope, and the side faces of said web  
95 are recessed or hollowed out to form bearings for conical-shaped portions on the hinge member of the cope.

The match-plate C is provided at its rear edge with hinge members each of which com-  
100 prises two semi-circular-shaped flanges 4 that rest upon the inside faces of the flanges 2 of the cooperating hinge member on the drag when the match-plate is in operative position, as shown in Fig. 2. The flanges 4 on  
105 the match-plate are spaced apart, as shown in Fig. 4, so as to provide a slot into which the web 1 of the hinge member on the drag B projects, and said flanges are provided at  
110 their outer edges with vertically disposed



strengthening webs 5 that cooperate with the flanges 4 to form a socket for receiving the hinge member on the cope. We prefer to provide the match-plate with integral hinge members but it will, of course, be understood that the hinge members could be formed separate from the match-plate and connected thereto by fastening devices without departing from the spirit of our invention.

The cope A of the flask is provided with hinge members each of which consists of two approximately disk-shaped portions 6 arranged vertically and provided on their inner faces with conical-shaped projections 7 that have their apexes connected together, as shown in Fig. 4, so as to produce a fulcrum pin having a contracted central portion which fits in the slot formed in the web 1 of the hinge member on the drag.

Prior to the operation of ramming the flask, the match-plate is arranged between the cope and drag, as shown in Fig. 2, the outer faces of the semi-circular flanges 4 of the hinge members on the match-plate resting upon the inner faces of the semi-circular flanges 2 of the hinge members on the drag, and the disk-shaped portions 6 of the hinge members on the cope resting upon the inner faces of the semi-circular flanges 4 of the hinge members on the match-plate. After the flask has been rammed the cope A is swung upwardly away from the match-plate, the disk-shaped portions 6 turning or rocking on the inside faces of the flanges 4. The cope is then lifted bodily from the drag so as to withdraw the hinge members on the cope from the cooperating hinge members on the match-plate and the match-plate is then swung upwardly away from the drag. As the match-plate swings upwardly its flanges 4 turn or rock on the inside faces of the semi-circular flanges 2 of the hinge members on the drag and thus cause the match-plate to move evenly so that no skill is required on the part of the workman to remove the match-plate. After the match-plate has been raised far enough to withdraw the pattern on the underneath side thereof from the sand, said match-plate is lifted bodily from the drag, the hinge members on the drag being so constructed that the hinge members of the match-plate pass out of engagement with same when the match-plate is lifted or moved bodily away from it. The cope is then arranged over the drag so that the hinge members on the cope project into the hinge members on the drag and the cope is then swung downwardly into operative position on the drag, as shown in Fig. 3. When the cope swings downwardly into operative position the lower edges of the slots 3 in the vertical webs 1 of the hinge members on said drag act as bearings for the contracted fulcrum pin on the hinge members of the cope,

the recesses in the side faces of said webs 1 act as bearings for the conical-shaped portions 7 of the hinge members on the cope, and the inner faces of the flanges 2 on the hinge members of the drag act as bearings for the disk-shaped portions 6 of the hinge members on the cope so that the cope will be sure to be positioned properly relatively to the drag.

As shown in Fig. 2, the semi-circular-shaped flanges 4 of the hinge members on the match-plate are of the same thickness as the portion 8 of the match-plate that lies between the meeting edges of the cope and drag so that when the match-plate is removed and the hinge members on the cope rest upon the hinge members of the drag the faces of the cope and drag in which the impressions of the pattern are formed will contact with each other as shown in Fig. 3.

By mounting the match plate in the manner above described we are able to use a large match-plate as the cooperating hinged members cause the match-plate to move evenly when the workman swings it upwardly.

Having thus described our invention, what we claim as new and desire to secure by Letters Patent is:

1. A flask comprising a cope and a drag, a hinge member on one of said parts having a curved bearing surface, a cooperating hinge member on the other part having an approximately cylindrical-shaped bearing surface, a match-plate arranged between the cope and drag, and hinge members on the match-plate having semi-circular-shaped flanges that rest freely upon the curved bearing surface of the member first referred to and which are adapted to form bearing surfaces for the cylindrical-shaped bearing surface of the second member referred to; substantially as described.

2. A flask comprising a cope and a drag, socket hinge members on one of said parts, cooperating hinge members on the other part that are adapted to rest freely in said socket hinge members, and a match-plate arranged between the cope and drag and provided with hinge members that are interposed between the cooperating hinge members on said parts; substantially as described.

3. A flask consisting of a cope and a drag provided with cooperating hinge members, a match-plate arranged between said parts, and hinge members on the match-plate interposed between the cooperating hinge members on the cope and drag, the hinge members on the match-plate being of the same thickness as that portion of the match-plate which extends between the edge portions of the cope and drag; substantially as described.

4. A flask comprising a cope and a drag hinge members of one of said parts consisting



of approximately disk-shaped portions and fulcrum pins, hinge members on the other part consisting of webs provided with sockets for said fulcrum pins and semi-circular-shaped flanges arranged in alinement with said disk-shaped portions, a match-plate arranged between the cope and drag, and hinge members on said match-plate consisting of semi-circular-shaped flanges that are interposed between the disk-shaped portions and the semi-circular-shaped flanges of the hinge members on the cope and drag; substantially as described.

5. A hinge composed of three members each of which is adapted to be connected to an object, one of said members consisting of a socket and semi-circular-shaped flanges, the other member consisting of a semi-circular-shaped portion which rests on said flanges and is provided with a curved bearing surface, and the other member consisting of approximately round portions that rest upon said curved bearing surfaces and which are provided with a fulcrum pin that fits in the socket of the member first referred to; substantially as described.

6. A hinge comprising a member that is provided with a vertically disposed web in which a socket is formed, curved bearing surfaces on the sides of said web and semi-circular-shaped flanges that project laterally

from said web, and a cooperating member having approximately disk-shaped portions which bear upon the flanges of the member first referred to and a fulcrum pin that rests in the socket and engages the curved bearing surface on the web of the member first referred to; substantially as described.

7. A three-part hinge comprising a member provided with a vertically disposed web in which a slot is formed and semi-circular-shaped flanges that project laterally from said web, said web being provided on its sides with sockets, a second member provided with semi-circular-shaped flanges that embrace the web and rest upon the flanges of the member first referred to, and a third member provided with disk-shaped portions that rest upon the semi-circular-shaped flanges of the second member, said disk-shaped portions being provided with conical-shaped projections that rest in the sockets in the web of the member first referred to; substantially as described.

In testimony whereof, we hereunto affix our signatures in the presence of two witnesses, this 15th day of April, 1908.

LEE W. VAN CLEAVE.  
GEORGE O. DEWEY

Witnesses:

WELLS L. CHURCH,  
GEORGE BAKEWELL.